

Determinants of Live Commerce Acceptance: Focusing on the Extended Technology Acceptance Model (TAM)

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*Received April 6, 2023; revised August 28, 2023; accepted October 17, 2023;
published October 31, 2023*

Abstract

Live Commerce is rapidly emerging as a new paradigm for the digital economy and consumption activities in the post-COVID era. Many prior studies have been conducted on Live Commerce, but studies focusing on the characteristics of sources of Live Commerce are insufficient. This study aimed to investigate the human factors of sources that affect consumers' intention to use Live Commerce. For this purpose, based on an expanded TAM (Technology Acceptance Model) through literature research, variables were set, and a survey was conducted targeting Korean consumers who have experienced purchasing products through Live Commerce.

Excluding unreliable data, 201 responses were utilized in the analysis of this study. At first, the measurement tools were checked through validity and reliability verification, and correlation analysis was conducted to identify the relationships between variables. Then, the proposed hypotheses were verified through multiple regression analysis. As a result, firstly, the human factors of sources had a positive effect on PU (Perceived Usefulness). Secondly, the PEOU (perceived ease of use) had a positive effect on both PU and CS (Consumer Satisfaction). Thirdly, PU had a positive effect on CS and ITU (Intention to Use). Finally, CS with Live Commerce had a positive effect on the ITU.

Through this study, we try to provide an understanding of consumer behavior in the Live Commerce environment and contribute to enhancing the service provider's ability to offer high-quality Live Commerce content.

Keywords: Expertise, Extended Technology Acceptance Model, Interactivity, Live Commerce, Source

1. Introduction

With the popularization of smartphones, consumers share and acquire information through media and social network services (SNS) without the constraints of time and place. This has led to a change in consumer behavior [1]. Due to the COVID-19 outbreak in 2019, the frequency of offline store purchases decreased significantly as the number of consumer outings decreased. On the other hand, non-face-to-face online purchasing methods are becoming commonplace worldwide [2].

Live Commerce is a compound word of Live Streaming and E-Commerce, which means a service where communication and shopping take place in real-time online. In terms of market size, Live Commerce has been steadily growing, increasing by 226% in 2019 and 121.5% in 2020. This indicates that Live Commerce is rapidly emerging as a novel business model in the digital economy and transforming consumer behavior in the era after COVID-19.

In Korea, Live Commerce is emerging as a response strategy to the trend of diversification of online consumption patterns [3]. With the recent rapid increase in non-face-to-face consumption, various companies as well as small business owners are jumping into the Live Commerce industry to overcome the limitations of non-face-to-face marketing. According to a social media app evolution report by App Annie, the top 5 live streaming service platforms have recorded an average annual growth rate of 25% over the past three years. In addition, with the entry of Naver and Kakao, which are Korea's largest Internet portal sites and other Internet information mediation services companies, into the Live Commerce market, a domestic Live Commerce ecosystem is being formed with large platform operators at the center [3]. In Korea, as well, consumer interest in Live Commerce and investment by major companies are increasing due to the activation of non-face-to-face transactions after the outbreak of COVID-19.

The main reason for the increasing interest in Live Commerce is the ability to search for desired products through smartphones without the limitations of time and space. Additionally, consumers can make purchases quickly and conveniently using various payment methods. In addition, the characteristics of online live broadcasting platforms, such as interactivity, social functions, and entertainment value, have captured the interest of numerous viewers. The biggest characteristic of Live Commerce is that sources and consumers can communicate with each other in real-time. As online live streaming is combined with the online shopping mall industry, many companies have begun to compete in marketing strategies utilizing online live streaming, recording unprecedented sales. As such, "Live Commerce", which sells products through online live streaming, has grown into a massive industry [4].

The rapid development and powerful influence of the Live Commerce industry in the market indicate the necessity and importance of research on Live Commerce. As the domestic live streaming shopping market shows a rapid growth and an increase in usage rate, academic interest in this area is also growing. Various prior studies on Live Commerce exist; however, research has predominantly focused on the technical aspects or service quality of Live Commerce. Considering the distinctive nature of Live Commerce, which involves significant interaction between sellers and consumers through internet broadcasting, there is a need for an examination of the roles and characteristics of information sources who introduce products. Therefore, given the fact that research focused on the human factors influencing intention to use is still lacking, this study analyzed the influence of human factors of Live Commerce sources on consumers' intention to use Live Commerce.

The purpose of this paper is as follows. Firstly, to examine previous research and present the human factors of Live Commerce sources and analyze their effect on consumers' perceived

usefulness (PU) and perceived ease of use (PEOU). Secondly, to analyze the impact of PU and PEOU on intention to use (ITU) through customer satisfaction (CS). Through this, we aim to propose strategic implications for the sales approach using Live Commerce.

2. Literature review

2.1 Live Commerce

Live Commerce is a broadcasting format where products are introduced through internet live streaming, and consumers can purchase products immediately while watching the live stream. Recently, online shopping has taken the form of live streaming, allowing consumers to obtain specific and comprehensive information about products and services through real-time communication with the seller. As product information is introduced through real-time live streaming, buyers can confirm the product more directly than simply searching for the product's image or function [5]. This interactivity between sources and consumers has been shown to be a positive factor in purchasing behavior, and Live Commerce is gaining more attention [6].

Live Commerce has the advantage for service providers to advertise with saving cost and time, and viewers can access the content anytime, anywhere without paying additional fees [7]. It is expected to be more widely used in the future, especially since it can be easily accessed through mobile devices. Unlike the one-way characteristic of traditional home shopping and online shopping malls, Live Commerce enables two-way communication between sources and potential consumers, allowing consumers to receive the desired information immediately and make payments [8].

As much attention as Live Commerce is receiving in the industry, related research is also being recognized in academia. Most of the research mainly focuses on the characteristics of Live Commerce platforms and services. In this study, we try to investigate the human factors of Live Commerce sources. Specifically, Chen and Hwang [9] conducted a study on the attributes of influencers in SNS and internet shopping, which were classified into recognition, expertise, similarity, and relationship strength, and examined their effects on consumers' purchase intention. Among the attributes of influencers, expertise was found to have the greatest impact on purchase intention. In particular, for consumers who are indifferent to a specific product, expertise was found to have a greater influence. In addition, Lee and Chen [10] examined the impact of sources characteristics on impulse buying behavior of consumers, which were classified into attractiveness, trustworthiness, and expertise, while Xue et al. [11] confirmed that the personalization, responsiveness, entertainment, and mutuality of live shopping, mediated by the PU, have a positive effect on purchasing behavior based on the S-O-R framework, and that these characteristics promote participation in Live Commerce, reducing perceived risk and psychological distance.

Based on previous studies, this research focused on expertise (EXP) and interactivity (IA) as the most important human factors in Live Commerce sources.

2.1.1 Expertise

Expertise is defined as the degree to which consumers perceive that an information source can accurately assess an issue and provide correct solutions [12]. Having expertise means possessing abilities beyond those of the average person or having various experiences and knowledge in a specific field [8, 13]. In Live Commerce, the expertise of the source refers to their knowledge and ability to evaluate, judge, and accurately convey product information [14].

Products are introduced and sold through live broadcasts in Live Commerce. Therefore, the source without expertise negatively affects consumer purchase intention and brand trust. Based on this, this study defined the expertise of Live Commerce sources as the level of product knowledge and the degree of information delivery ability perceived by consumers.

2.1.2 Interactivity

Interactivity refers to the influence that individuals or objects have on each other, and it is widely and diversely applied in various fields. Interactivity refers to the degree to which participants in the communication process control mutual dialogue and enable role exchange between each other [15], and it is a process of mutual communication that occurs in both directions, rather than one-sided communication [16]. This is particularly the most noticeable feature of new media compared to traditional media [17]. Internet live broadcasting is a representative example of a new type of media that allows streamers and viewers to exchange opinions in real-time and quickly respond to each other's opinions [18]. McMillan and Hwang [19] stated that the greatest characteristic of internet live broadcasting is "interaction", which involves the exchange of thoughts between the host and viewers, as well as between viewers. In internet live broadcasting, interactivity refers to communication between the host and viewers in real-time chat and the exchange of information among them. Live Commerce is characterized by real-time interaction between participants through internet live broadcasting, which distinguishes it from home shopping and online shopping [20]. In this study, interactivity of sources of Live Commerce was defined as the degree to which Live Commerce sources and consumers communicate effectively.

2.2 Technology Acceptance Model

Efforts to explore consumer acceptance of new changes and phenomena have evolved through various theories. Such research began with Fishbein and Ajzen's [21] Theory of Reasoned Action (TRA) and was systematized into the Technology Acceptance Model (TAM) by Davis [22]. Additionally, Venkatesh and Davis [23] proposed the Extended Technology Acceptance Model (ETAM) based on this. According to TAM, PU and PEOU are important factors for consumers in using new technology [24]. The magnitude of a user's intention to use new technology is determined by PU and PEOU [25]. Davis's research [22] defined PU as the degree to which an individual perceives that utilizing new technology can enhance work performance, and PEOU as the degree to which consumers perceive that using new technology is effortless. After that, many previous studies have confirmed through empirical analysis that PU and PEOU are variables that directly or indirectly influence attitudes and intentions to use new information technology [24, 25]. Therefore, TAM is used in various studies as a framework for explaining the process by which users accept new technology.

On the other hand, TAM has been criticized for being limited in reflecting diverse perspectives because its determinant variables for the intention to accept technology are confined to PU and PEOU. To address this issue, Venkatesh and Davis [23] proposed the ETAM, which considers the influence of external variables. The ETAM reflects a wider range of the acceptance process of various technologies and has the advantage of being able to apply various variables by considering the characteristics of the technology [26]. For example, Moon and Kim [27] applied the ETAM to the environment of using the World Wide Web. They introduced perceived playfulness in addition to the existing variables of PU and PEOU, and confirmed that it has a significant effect on the ITU. Chang et al. [28] conducted a study on the factors influencing the acceptance of online English learning among Taiwanese students. In their study, they introduced perceived convenience as an additional variable and confirmed

its significant effect on the intention to continue to use the service.

As such, TAM are actively applied and developed by introducing various variables to verify the acceptance process of new technologies that emerge with the times. Based on previous studies, this study defines perceived usefulness (PU) as the degree of benefits that consumers expect to obtain through the use of Live Commerce, and perceived ease of use (PEOU) as the degree to which consumers believe that using Live Commerce requires little effort.

2.3 Customer Satisfaction

Cardozo [29] defined customer satisfaction as the evaluation of the difference between a consumer's expectations and perceptions of the service provided by a company. Czepie and Rosenberg [30] defined it as the evaluation of a consumer's fulfillment of desires that arise when acquiring or consuming a product or service. Oliver [31] defined customer satisfaction as the overall psychological state of consumers when they experience expectation-confirmation or disconfirmation situations. In online shopping, satisfaction can be defined as the emotional response of consumers after comparing their expectations and actual experiences of shopping [32]. Based on previous studies, this study defines customer satisfaction (CS) as consumers' perceived satisfaction with their experience of using Live Commerce.

2.4 Intention to Use

Intention is a precedent factor that induces individual behavior [21], and it has been said that consumer's intention to use or purchase products and services lead to their actual behaviors. Dodds et al. [33] defined purchase intention as the individual's thoughts and motivations regarding product purchase, and Aaker [34] defined it as the possibility of purchasing a specific product or service as a consumer's behavior and attitude. In the studies of Bickart and Schindler [35] and Poddar et al. [36], purchase intention in the online environment refers to the likelihood of a consumer purchasing a product online. Based on this, this study defines intention to use (ITU) as the intention of consumers who want to purchase a product through Live Commerce.

3. Hypotheses Development

3.1 Human Factors and Perceived Usefulness

Previous studies have shown that human factors such as sources' recognition, expertise, similarity, relationship strength, attractiveness, trustworthiness, and mutuality have a significant effect on consumers' intention to use services. Among them, expertise was found to have the greatest influence [37]. Depending on the person delivering the message about the same issue, the recipient's evaluation and attitude toward the message may differ [38]. In previous studies on the effect of consumers' perceived expertise of service providers on intention to continue to use, it was found to have a significant effect on trust and immersion, and was empirically proven to be an important determinant in enhancing intention to continue to use [39]. Looking at previous studies on expertise based on TAM, expertise of internet personal broadcasting creators was found to be an important factor influencing viewers' satisfaction [40], and the source of Live Commerce also influences potential consumers [17]. In the same context, according to the study conducted by Siering et al. [41], reviews written by highly expert reviewers had a positive effect on consumers' PU.

Live Commerce combines the features of internet live broadcasting and e-commerce

platforms, and active interaction between sources and consumers is an important factor in the success of the broadcast [42]. The interaction between sources and consumers in Live Commerce increases the participation rate of Live Commerce, and this ultimately has a significant effect on purchase intention [43]. Ma and Cho [44] conducted research on the effect of seller-buyer interaction in the digital environment on consumer attitudes toward advertising, brand awareness, and purchase intention, targeting consumers in Korea and China. The result of the study shows that active interaction had a positive effect on all variables for both Korean and Chinese consumers. In a study on the effect of SNS characteristics on consumer attitudes, it was found that interactivity, playability, and relationship had a positive effect on consumer attitudes through PU [45]. Interactivity is considered one of the unique and important features of Live Commerce in many previous studies. For example, in Live Commerce dealing with fashion products, there are many inquiries about the material or details of the product. Participants in Live Commerce form social relationships and acquire information about the product through immediate interaction, and their desires are met, and satisfaction is formed [46].

Based on these results of previous studies, this study proposes the following hypotheses about the human factors of Live Commerce.

H1: Human factors of Live Commerce will have positive effects on PU.

H1-1: EXP will have a positive effect on PU.

H1-2: IA will have a positive effect on PU.

3.2 Perceived Ease of Use and Perceived Usefulness

Davis [22] proposed the TAM based on the TRA to comprehend customers' intention to use information systems, with PU and PEOU as the key determinants. Since then, many studies have been conducted using PU and PEOU as variables that consistently influence individuals' behavioral intentions from the acceptance stage of new technology to long-term use [47-50].

First, it was found that PEOU has a positive effect on PU in many previous studies. In a study on the antecedents of consumer satisfaction with mobile commerce, PEOU was found to have a significant effect on PU [51]. Additionally, in a study on intention to use SNS focused on hotel dining businesses, Park and Byun [52] found that PEOU had a positive effect on PU.

Secondly, many previous studies have demonstrated that PU and PEOU have a positive effect on CS. In the study by Park and Byun [52] mentioned earlier, PEOU was found to have a significant effect on consumer satisfaction through PU as a mediator. In addition, a study on online shopping found that PU had a significant effect on CS [53]. Amin and Abolghasemi [54] conducted a study on mobile websites and found that PEOU had a significant effect on CS. Moreover, in previous studies on online banking services and mobile commerce, PU and PEOU were found to have a significant effect on CS [51,55].

Lastly, it has been proven through many previous studies that PU is a variable that significantly affects ITU of information technology. In a study targeting SNS users, PU was found to be a factor that positively affects intention to continue to use [52]. Other studies on service usage in online environments have also demonstrated the relationship between PU and ITU. In a study on the acceptance of mobile OTT services, PEOU was found to be a factor that positively affects PU, and both PEOU and PU were found to significantly affect ITU [56]. In the results of the study conducted by Cho and Sagynov [57], which was targeting online purchasing environments, PEOU was found to have a significant effect on PU, and both PU and PEOU were shown to have a positive effect on purchase intention.

Drawing on the findings of previous studies, this study suggests the following hypotheses about the relationship between PU and PEOU in the environment of usage of Live Commerce.

H2: PEOU will have a positive effect on PU.

H3: PU will have a positive effect on CS.

H4: PEOU will have a positive effect on CS.

H5: PU will have a positive effect on ITU of Live Commerce.

3.3 Customer Satisfaction and Intention to Use

Customer satisfaction (CS) is a post-evaluation of a consumer's service experience and is a key factor in improving the consumer's intention to use or actual usage behavior. Jun and Kang [58] suggested that consumer satisfaction with information quality on social commerce sites had a positive effect on intention to continue to use. Revels et al. [59] found that consumer satisfaction with mobile applications' services had a significant effect on ITU, and research on intention to use website also showed that consumer satisfaction has a positive effect on ITU [60]. Thus, CS, particularly in a service usage environment, is an important factor that influences the use of the service. The following hypothesis was established regarding CS and ITU based on the results of the preceding research.

H6: CS will have a positive effect on ITU of Live Commerce.

Based on the hypotheses presented in this study, a research model was established as shown in Fig. 1.

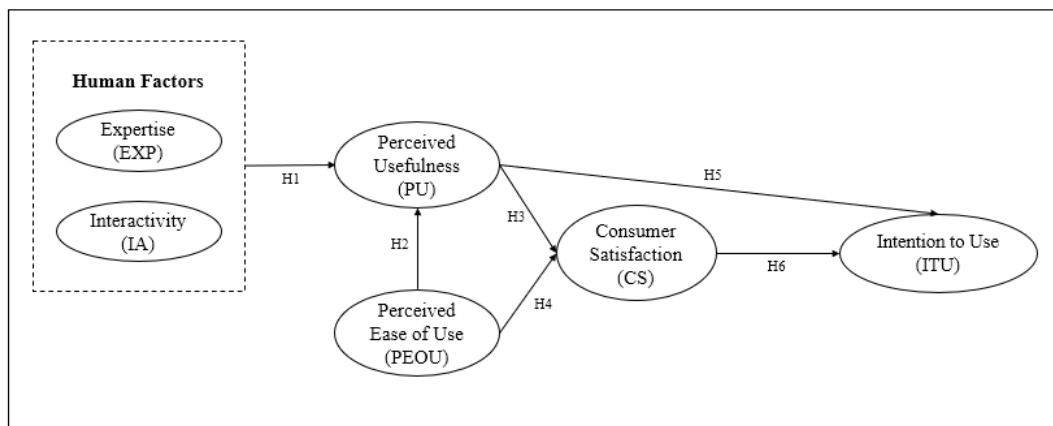


Fig. 1. Research Model

4. Methodology

4.1 Sample Characteristics

This study conducted a survey targeting consumers with experience in purchasing products through Live Commerce. The survey was conducted online for a total of three weeks, and a total of 41 surveys that were deemed unreliable or had duplicate responses were excluded from the collected responses. Finally, 201 valid questionnaires were used as the final sample. Every item was assessed using on a 7-point Likert scale, and statistical analysis was conducted using SPSS 25.0.

Table 1. Characteristics of Live Commerce Service Customers

Category	Frequency (n=201)	Composition Rate (%)	
Gender	Male	67	33.3
	Female	134	66.7
Age	20s	117	58.2
	30s	44	21.9
	40s	22	10.9
	50s	15	7.5
	60s or older	3	1.5
Product Type	Lifestyle (Living Supplies)	37	18.4
	Leisure (Accommodation, Transportation, Tourist Products, etc.)	2	1
	Beauty	25	12.4
	Tech (Electronics)	12	6
	Fashion	73	36.3
	Food	52	25.9
Frequency of Use	Less than once a month	85	42.3
	2~3 times a month	83	41.3
	Once a week	16	8
	2~3 times a week	14	7
	Every Day	3	1.5
Period	Less than 6 months	88	43.8
	6 months to less than 12 months	64	31.8
	12 months to less than 18 months	23	11.4
	18 months to less than 24 months	8	4
	24 months or more	17	8.5

4.1 Measurement Items

This study conducted a survey to validate the research model. The operational definitions and measurement items of the variables are presented in [Table 2](#).

Table 2. Operational Definition and Measurement Items

Variables	Operational Definition and Measurement Items	Sources
Expertise	The level of product knowledge and the degree of information delivery ability possessed by Live Commerce sources perceived by the consumer.	[37, 61, 62]
	<ol style="list-style-type: none"> 1) The sincerity of the Live Commerce source is felt. 2) The truthfulness of the Live Commerce source is felt. 3) The Live Commerce source is trustworthy. 4) The Live Commerce source appears to be expertise. 	
Interactivity	The degree to which Live Commerce sources and consumers communicate effectively.	[15, 63-65]
	<ol style="list-style-type: none"> 1) I feel like I am communicating with the Live Commerce source. 2) It feels like I am having a face-to-face meeting with the Live Commerce source. 3) I feel like I am communicating with other customers who use Live Commerce. 4) When using Live Commerce, I feel like I am shopping with many people at the same time. 	
Perceived Usefulness	The degree of benefits that consumers expect to obtain through the use of Live Commerce.	[22, 47, 66]
	<ol style="list-style-type: none"> 1) Using Live Commerce is useful for me. 2) The information obtained from Live Commerce is more useful than that obtained offline. 3) Using Live Commerce is useful because it can save time searching for product information. 4) Live Commerce provides various information about products. 5) Live Commerce is generally useful. 	
Perceived Ease of Use	The degree to which consumers believe that using Live Commerce requires little effort.	[22, 67]
	<ol style="list-style-type: none"> 1) It doesn't require a lot of effort to use Live Commerce. 2) It is easy to learn how to shop through Live Commerce. 3) With Live Commerce, I can easily do what you want to do. 4) The product purchase procedure in Live Commerce is simple. 5) Live Commerce is generally easy to use. 	
Customer Satisfaction	Consumers' perceived satisfaction with their experience of using Live Commerce.	[47, 66, 68]
	<ol style="list-style-type: none"> 1) I am satisfied with using Live Streaming Shopping. 2) Overall, I am satisfied with the shopping experience through Live Commerce. 3) Using Live Commerce is a wise choice. 4) I am relatively satisfied with the information provided by Live Commerce. 5) I am relatively satisfied with the additional services provided by Live Commerce. 	
Intention to Use	The intention of consumers who want to purchase a product through Live Commerce.	[47, 66, 69]
	<ol style="list-style-type: none"> 1) I have an intention to repurchase products using Live Commerce. 2) I plan to purchase products through Live Commerce. 	

	3) I will recommend purchasing products through Live Commerce to others.	
	4) I prefer to use Live Commerce when purchasing products.	

5. Results

The validity and reliability tests were conducted to verify the measurement items. For factor analysis, principal component analysis and varimax rotation were adopted. If the eigenvalue of the analysis result was above 1.0 and the factor loading was above 0.4, and KMO (Kaiser-Meyer-Olkin) was above 0.6, it was considered significant. The reliability verification was based on the Cronbach's α , which judges the internal consistency of the scale. If it was above 0.7, the reliability of the scale was considered to be secured. The verification results are shown in [Table 3](#).

Table 3. Validity and Reliability Verification Results

Variables		Component						Cronbach's Alpha
		1	2	3	4	5	6	
Intention to Use	ITU 3	.859	.104	.025	.117	.022	.156	.937
	ITU 2	.847	.281	.088	.212	.091	.195	
	ITU 1	.822	.263	.127	.210	.129	.157	
	ITU 4	.816	.195	.096	.232	.047	.271	
Perceived Ease of Use	PEOU 2	.208	.813	.196	.169	.161	.057	.910
	PEOU 5	.245	.808	.159	.102	.056	.289	
	PEOU 4	.208	.786	.191	.184	.063	.255	
	PEOU 3	.190	.757	.250	.282	.229	.113	
	PEOU 1	.217	.542	.347	.395	.165	-.025	
Expertise	EXP 2	.164	.185	.851	.149	.149	.031	.889
	EXP 1	.091	.144	.822	.114	.211	.219	
	EXP 3	.078	.252	.764	.186	.200	.053	
	EXP 4	.005	.209	.707	.171	.203	.292	
Perceived Usefulness	PU 3	.327	.232	.112	.729	.249	.159	.900
	PU 2	.259	.130	.337	.698	.242	-.036	
	PU 4	.150	.244	.189	.654	.175	.369	
	PU 1	.227	.297	.163	.640	.324	.290	
	PU 5	.261	.269	.168	.635	.162	.424	
Interactivity	IA 3	.140	.071	.164	.027	.825	.157	.841
	IA 4	.020	.080	.094	.243	.782	.175	

	IA 2	.084	.207	.261	.278	.725	-.150	
	IA 1	.039	.157	.346	.246	.658	.159	
Customer Satisfaction	CS 4	.443	.137	.154	.191	.156	.648	.915
	CS 3	.428	.206	.245	.242	.087	.633	
	CS 1	.456	.309	.179	.275	.169	.613	
	CS 2	.432	.355	.256	.197	.198	.595	
Eigen value		4.186	3.812	3.422	3.229	2.921	2.542	
Variance (%)		16.099	14.660	13.160	12.419	11.233	9.777	
KMO = .926 Bartlett's sphericity test (Significance level) = .000								

Table 4. Correlation Analysis Verification Results

Variables	Correlation					
	EXP	IA	PEOU	PU	CS	ITU
EXP	1					
IA	.539**	1				
PEOU	.570**	.450**	1			
PU	.554**	.595**	.662**	1		
CS	.510**	.433**	.633**	.698**	1	
ITU	.323**	.284**	.549**	.598**	.729**	1

**Significant at the 0.01 level (Both sides)

The following is the result of multiple regression analysis of the research model in this study. As shown in tables below, the human factors of Live Commerce sources were found to have a statistically significant positive effect on PU. Therefore, H1 was supported. Similarly, PEOU was found to have a statistically significant positive effect on PU. Therefore, H2 was supported. In addition, PU and PEOU were found to have a positive effect on CS, and the effect of PU for ITU also showed the same result. Therefore, H3 to H5 were also supported. Finally, CS was found to have a positive effect on ITU. Accordingly, H6 was also supported. The results of hypotheses testing are shown in **Table 5** to **Table 10**.

Table 5. The Relationship between Human Factors and PU

Dependence Variables	Independence Variables	β	t
Perceived Usefulness	Expertise	.329	5.160***
	Interactivity	.418	6.559***
	R ² = .430, F = 74.757, P = .000, Durbin-Watson = 1.94		

***p<.00

Table 6. The Relationship between PEOU and PU

Dependence Variables	Independence Variables	β	t
Perceived Usefulness	Perceived Ease of Use	.662	12.456***
	R ² = .438, F = 155.149, P = .000, Durbin-Watson = 2.121		

***p<.00

Table 7. The Relationship between PU and CS

Dependence Variables	Independence Variables	β	t
Customer Satisfaction	Perceived Usefulness	.698	13.750***
	R ² = .487, F = 189.07, P = .000, Durbin-Watson = 1.979		

***p<.00

Table 8. The Relationship between PEOU and CS

Dependence Variables	Independence Variables	β	t
Customer Satisfaction	Perceived Ease of Use	.663	11.540***
	R ² = .401, F = 133.162, P = .000, Durbin-Watson = 2.005		

***p<.00

Table 9. The Relationship between PU and ITU

Dependence Variables	Independence Variables	β	t
Intention to Use	Perceived Usefulness	.598	10.521***
	R ² = 0.357, F = 110.696, P = .000, Durbin-Watson = 2.009		

***p<.00

Table 10. The Relationship between CS and ITU

Dependence Variables	Independence Variables	β	t
Intention to Use	Customer Satisfaction	0.729	15.003***
	R ² = 0.531, F = 225.089, P = .000, Durbin-Watson = 1.828		

***p<.00

To summarize multiple regression analysis results, the high expertise and interactivity of Live Commerce sources stimulate consumers to perceive Live Commerce as more useful. Consequently, this positively influences satisfaction to Live Commerce services and has been confirmed as a significant factor in enhancing the intention to use of these services. Detailed implications and interpretations of the hypothesis testing results can be found in the following chapter.

6. Discussion

In this study, we examined the effect of human factors in Live Commerce on intention to use. This study reviewed the concepts and relationships of each variable through previous studies and verified the research model by conducting a survey of customers who have experience using Korean Live Commerce. The summary of the research results is as follows.

Firstly, both the expertise and interactivity of Live Commerce sources were found to have a positive effect on PU. This means that consumers perceive Live Commerce to be more useful when sources with expertise explain the product. If the sources explain the product based on their knowledge and experience, and accurately assess the product's issues and convey them to consumers, consumers recognize the sources' high expertise and perceive Live Commerce as useful. Additionally, it was also found that consumers are more influenced by active interaction than by the expertise of sources. As consumers directly ask sources about the product and sources actively respond to these inquiries and communicate with consumers, consumers feel that Live Commerce to be useful.

Secondly, PEOU of Live Commerce was found to have a positive effect on PU. This means that consumers recognize Live Commerce as a more useful service as they feel that shopping through Live Commerce is not difficult. In simple terms, when consumers can easily access Live Commerce, communicate easily with sources, and purchasing is not difficult, they consider Live Commerce as a useful shopping method. This result supports the results of various previous studies that used TAM.

Thirdly, it was found that PU and PEOU of Live Commerce have a positive effect on CS. This means that customers are satisfied with the Live Commerce service when they perceive it as easy to purchase products and when they feel that they can benefit greatly from Live Commerce. In addition, it was found that PU has a positive effect on the ITU of Live Commerce. This means that customers are more likely to use Live Commerce as they perceive greater benefits from it. The effect of PU and PEOU on CS and ITU is supported by the research results of previous studies, which are particularly evident in online environments [70-72]. Furthermore, the more satisfied customers are with the Live Commerce service, the more likely they are to purchase products through Live Commerce.

7. Conclusions

This study verified the effect of human factors of Live Commerce sources on consumers' intention to use Live Commerce by applying TAM. Through this, it identified the key factors that individuals or companies using Live Commerce to sell products should prioritize in their planning to sell products should focus on when planning Live Commerce contents and established a theoretical basis to explain them. In order to successfully sell products through Live Commerce, vendors and Live Commerce platforms need to offer education and training opportunities to sources, and sources need to make efforts to resolve consumers' curiosity.

Apart from the meaning of this paper, there are some limitations. This study was conducted on consumers who have used Live Commerce at least once. Future studies should take into account other factors such as the frequency of consumers' use of Live Commerce, purchase amount, gender, age group, etc. Also, since the human factors of sources have a significant effect on consumers' usage intention, further research should be conducted to consider this in a more multidimensional way.

References

- [1] L. Silver, "Smartphone Ownership Is Growing Rapidly Around the World, but Not Always Equally," Pew Research Center's Global Attitudes Project, United States of America, Retrieved from, 2019.
- [2] K. W. La, K. W. Oh, "Effects of Wanghong marketing in live commerce on chinese consumers' purchase intention toward fashion products - Focusing on the mediating effect of Wanghong's characteristics and consumers' co-experience -," *Journal of the Korea Fashion & Costume Design Association*, vol. 23, no.1, pp. 19-36, Feb. 2021. [Article \(CrossRef Link\)](#)
- [3] E. S. Joo, "The Effects of Live Commerce's IT Affordance on Interactivity, Immersion, and Purchase Intention," *The Journal of the Korea Contents Association*, vol. 22, no. 2, pp. 734-751, Feb 2022. [Article \(CrossRef Link\)](#)
- [4] A. Wongkitrungrueng, N. Dehouche, and N. Assarut, "Live streaming commerce from the sellers' perspective: implications for online relationship marketing," *Journal of Marketing Management*, vol. 36 no. 5-6, pp. 488-518 Apr. 2020. [Article \(CrossRef Link\)](#)
- [5] C. C. Chen, Y. C. Lin, "What drives live-stream usage intention? The perspectives of flow, entertainment, social interaction, and endorsement," *Telematics and Informatics*, vol. 35, no. 1, pp. 293-303, Apr. 2018. [Article \(CrossRef Link\)](#)
- [6] R. Olbrich, C. Holsing, "Modeling Consumer Purchasing Behavior in Social Shopping Communities With Clickstream Data," *International Journal of Electronic Commerce*, vol. 16, no. 2, pp. 15-40, Dec. 2011. [Article \(CrossRef Link\)](#)
- [7] J. H. Lee, K. A. Ko, and D. G. Ha, "A study on Motivations of Viewers Watching Personal Live Streaming Broadcast and the Influences of Motivation Factors to Satisfaction and Continuance Intention Focused on Post Acceptance Model (PAM)," *The Korean Journal of Advertising and Public Relations*, vol. 20, no. 2, pp. 178-215, Apr. 2018. [Article \(CrossRef Link\)](#)
- [8] S. J. Kim, C. M. Heo, "Effects of Live Commerce and Show Host Attributes on Purchase Intention: Including the Mediating Effects of Content Flow," *Asia-Pacific Journal of Business Venturing and Entrepreneurship*, vol. 16, no. 3, pp. 177-191, 2021. [Article \(CrossRef Link\)](#)
- [9] M. T. Chen, J. S. Hwang, "The Effects of Fashion Social Curation Shopping App Characteristics and Attributes of Influencers on Purchase Intention of Chinese Consumers: The Moderating Effect of Consumer Expertise," *The Journal of International Trade & Commerce*, vol. 16, no. 5, pp. 663-686, Oct. 2020. [Article \(CrossRef Link\)](#)
- [10] C. H. Lee, C. W. Chen, "Impulse buying behaviors in live streaming commerce based on the stimulus-organism-response framework," *Information*, vol. 12, no. 6, pp. 241, Aug. 2021. [Article \(CrossRef Link\)](#)
- [11] J. Xue, X. Liang, T. Xie and H. Wang, "See Now, Act Now: How to Interact with Customers to Enhance Social Commerce Engagement?," *Information & Management*, vol. 57, pp. 1-26, Sep. 2020. [Article \(CrossRef Link\)](#)
- [12] M. H. Birnbaum, S. E. Stegner, "Source credibility in social judgment: Bias, expertise, and the judge's point of view," *Journal of Personality and Social Psychology*, vol. 37, no. 1, pp. 48, 1979. [Article \(CrossRef Link\)](#)
- [13] M. T. Lee, J. Y. YI, S. W. Shim, "An Exploratory Study on the Effect of YouTube Beauty Influencer Attributes on Contents Attitude, Product Attitude, Word of Mouth Intention, and Purchase Intention," *The Korean Journal of Advertising*, vol. 31, no. 5, pp. 117-142, May 2020. [Article \(CrossRef Link\)](#)
- [14] D. F. Spake, C. M. Megehee, "Consumer sociability and service provider expertise influence on service relationship success," *Journal of Services Marketing*, vol. 24, no. 4, pp. 314-324, 2010. [Article \(CrossRef Link\)](#)
- [15] E. M. Rogers, *Communication technology*, Simon and Schuster, 1986.
- [16] J. Alba, J. Lynch, B. Weitz, C. Janiszewski, R. Lutz, A. Sawyer, and S. Wood, "Interactive home shopping: consumer, retailer, and manufacturer incentives to participate in electronic marketplaces," *Journal of marketing*, vol. 61, no. 3, pp. 38-53, Jul. 1997. [Article \(CrossRef Link\)](#)

- [17] M. J. Liu, J. Y. Park, and H. E. Lee, "Technology Acceptance Model in Live Commerce Context: The Effect of Para-social Interactivity and Source Characteristics on Consumers' Shopping Intention on Live Commerce Platform," *The Journal of the Korea Contents Association*, vol. 21, no. 6, pp. 138-154, Jun. 2021. [Article \(CrossRef Link\)](#)
- [18] J. R. Lee, D. K. Yoo, and Y. K. Lee, "The Effect of Web Interactivity of e-Brand on Relationship Quality and Customer Loyalty," *Journal of The Korean Operations Research and Management Science Society*, vol. 29, no. 4, pp. 73-93, Dec. 2004.
- [19] S. J. McMillan, J. S. Hwang, "Measures of perceived interactivity: An exploration of the role of direction of communication, user control, and time in shaping perceptions of interactivity," *Journal of advertising*, vol. 31, no. 3, pp. 29-42, 2002. [Article \(CrossRef Link\)](#)
- [20] Y. H. Cho, S. H. Lim, "Psychological Effects of Interactivity for Internet Live Broadcasting Viewers Moderating Role of User Motivations on Parasocial Interaction, Social Presence, and Flow," *Korean Journal of Broadcasting & Telecommunications Research*, pp. 82-117, 2019.
- [21] M. Fishbein, I. Ajzen, "Belief, attitude, intention, and behavior: An introduction to theory and research," 1977. [Article \(CrossRef Link\)](#)
- [22] F. D. Davis, "Perceived usefulness, perceived ease of use, and user acceptance of information technology," *MIS Quarterly*, vol. 13, no. 3, pp. 319-340, Sep. 1989. [Article \(CrossRef Link\)](#)
- [23] V. Venkatesh, F. D. Davis, "A theoretical extension of the technology acceptance model: Four longitudinal field studies," *Management science*, vol. 46, no. 2, pp. 186-204, Feb. 2000. [Article \(CrossRef Link\)](#)
- [24] D. A. Adams, R. R. Nelson, and P. A. Todd, "Perceived usefulness, ease of use, and usage of information technology: A replication," *MIS quarterly*, vol. 16, no. 2, pp. 227-247, Jun. 1992. [Article \(CrossRef Link\)](#)
- [25] T. Farahat, "Applying the technology acceptance model to online learning in the Egyptian universities," *Procedia-Social and Behavioral Sciences*, vol. 64, pp. 95-104, Nov. 2012. [Article \(CrossRef Link\)](#)
- [26] H. Y. Kim, D. K. Sung, "Factors Influencing on Purchase Intention for an Autonomous Driving Car-Focusing on Extended TAM," *The Journal of the Korea Contents Association*, vol. 18, no. 3, pp. 81-100, 2018. [Article \(CrossRef Link\)](#)
- [27] J. W. Moon, Y. G. Kim, "Extending the TAM for a World-Wide-Web context," *Information & management*, vol. 38, no. 4, pp. 217-230, Feb. 2001. [Article \(CrossRef Link\)](#)
- [28] C. C. Chang, C. F. Yan, and J. S. Tseng, "Perceived convenience in an extended technology acceptance model: Mobile technology and English learning for college students," *Australasian Journal of Educational Technology*, vol. 28, no. 5, Jul. 2012. [Article \(CrossRef Link\)](#)
- [29] R. N. Cardozo, "An Experimental Study of Consumer Effort, Expectation, and Satisfaction," *Journal of Marketing Research*, vol. 2, pp. 244-249, Aug. 1965. [Article \(CrossRef Link\)](#)
- [30] J. A. Czepiel, L. J. Rosenberg, "Consumer satisfaction: Toward an integrative framework," New York University, Graduate School of Business Administration, 1976.
- [31] R. L. Oliver, "A cognitive model of the antecedents and consequences of satisfaction decisions," *Journal of marketing research*, vol. 17, no. 4, pp. 460-469, Nov. 1980. [Article \(CrossRef Link\)](#)
- [32] V. McKinney, K. Yoon, and F. M. Zahedi, "The measurement of web-customer satisfaction: An expectation and disconfirmation approach," *Information systems research*, vol. 13, no. 3, pp. 296-315, Sep. 2002. [Article \(CrossRef Link\)](#)
- [33] W. B. Dodds, K. B. Monroe, and D. Grewal, "Effects of price, brand, and store information on buyers' product evaluations," *Journal of marketing research*, vol. 28, no. 3, pp. 307-319, Aug. 1991. [Article \(CrossRef Link\)](#)
- [34] D. A. Aaker, "Should you take your brand to where the action is?," *Harvard business review*, vol. 75, no. 5, pp. 135-144, Sep. 1997.
- [35] B. Bickart, R. M. Schindler, "Internet forums as influential sources of consumer information," *Journal of interactive marketing*, vol. 15, no. 3, pp. 31-40, 2001. [Article \(CrossRef Link\)](#)
- [36] A. Poddar, N. Donthu, and Y. Wei, "Web site customer orientations, Web site quality, and purchase intentions: The role of Web site personality," *Journal of Business Research*, vol. 62, no. 4, pp. 441-450, Apr. 2009. [Article \(CrossRef Link\)](#)

- [37] R. Ohanian, "The Impact of Celebrity Spokespersons' Perceived Image on Consumers' Intention to Purchase," *Journal of Advertising Research*, vol. 31, no. 1, pp. 46-54, 1991.
- [38] D. S. Han, S. H. Yu, "A study of anonymous news source in the newspapers' reports: Focus on controversies of U.S. beef imports," *Journal of Communication Science*, vol. 8, no. 4, pp. 702-739, 2008.
- [39] J. G. Park, Y. K. Park, and J. B. Jang, "Impact of Service Provider's Expertise and Customer Sociability on Continuous Intention to Use: The Case of IT Services," *Journal of Korea Service Management Society*, vol. 13, no. 5, pp. 203-220, Dec. 2012. [Article \(CrossRef Link\)](#)
- [40] J. Y. Lim, J. M. Kim, "Analysis of audience attitude according to AfreecaTV Strategy Simulation Game BJ attributes - Focusing on Viewer Satisfaction, Loyalty, Viewing Purpose, Viewing Attitude -," *Journal of Communication Design*, vol. 62, pp. 106-117, 2018. [Article \(CrossRef Link\)](#)
- [41] M. Siering, J. Muntermann, and B. Rajagopalan, "Explaining and predicting online review helpfulness: The role of content and reviewer-related signals," *Decision Support Systems*, vol. 108, pp. 1-12, Apr. 2018. [Article \(CrossRef Link\)](#)
- [42] M. J. Kim, Y. J. Choi, "Effects of Internet Broadcasting Interactivity on Online Relationship and viewing style," *Broadcasting & Communication*, vol. 19, no. 3, pp. 84-126, 2018. [Article \(CrossRef Link\)](#)
- [43] S. C. Seol, J. H. Shin, "The Effects of Interactivity, Trust and Perceived Value on Repurchase Intention in Internet Shopping Mall," *Korean Journal of Business Administration*, vol. 18, no. 4, pp. 1457-1482, 2005.
- [44] S. F. Ma, S. H. Cho, "The Effect of Advertising's Interactivity on Korean and Chinese Consumer Attitude toward Advertising," *The Journal of the Korea Contents Association*, vol. 16, no. 7, pp. 91-99, 2016. [Article \(CrossRef Link\)](#)
- [45] S. H. Lee, Y. S. Kim, and H. S. Kim, "Effects of the SNS (Social Network Service) Characteristics on Consumer Attitude : Applying Modified Technology Acceptance Model," *Culinary Science & Hospitality Research*, vol. 24, no. 4, pp. 164-173, 2018. [Article \(CrossRef Link\)](#)
- [46] H. Y. Gwak, K. H. Lee, "Consumer perception of types of fashion live commerce: Using text mining," *Journal of Fashion Business*, vol. 25, no. 3, pp. 90-107, 2021.
- [47] A. Bhattacharjee, "Understanding information systems continuance: An expectation-confirmation model," *MIS Quarterly*, vol. 25, no. 3, pp. 351-370, Sep 2001. [Article \(CrossRef Link\)](#)
- [48] L. Zhang, P. Nyheim, and A. S. Mattila, "The effect of power and gender on technology acceptance," *Journal of Hospitality and Tourism Technology*, vol. 5, no. 3, pp. 299-314, Oct. 2014. [Article \(CrossRef Link\)](#)
- [49] P. Kowalczyk, "Consumer acceptance of smart speakers: a mixed methods approach," *Journal of Research in Interactive Marketing*, vol. 12, no. 4, pp. 418-431, Nov 2018. [Article \(CrossRef Link\)](#)
- [50] I. Zuniarti, I. Yuniasih, I. Martana, E. Setyaningsih, I. Susilowati, E. Pramularso, and D. Astuti, "The effect of the Presence of e-commerce on consumer purchasing decisions," *International Journal of Data and Network Science*, vol. 5, no. 3, pp. 479-484, 2021. [Article \(CrossRef Link\)](#)
- [51] A. Ngubelanga, R. Duffett, "Modeling mobile commerce applications' antecedents of customer satisfaction among millennials: An extended tam perspective," *Sustainability*, vol. 13, no. 11, pp. 5973, May 2021. [Article \(CrossRef Link\)](#)
- [52] J. S. Park, J. W. Byun, "The Effect of SNS's Perceived Enjoyment on Customer Satisfaction and the Intention of Use Using TAM : Focused on the F&B division of Hotel," *Journal of Tourism and Leisure Research*, vol. 25, no. 1, pp. 419-435, Jan. 2013.
- [53] U. Tandon, R. Kiran, A. N. Sah, "Customer satisfaction using website functionality, perceived usability and perceived usefulness towards online shopping in India," *Information development*, vol. 32, no. 5, pp. 1657-1673, Nov. 2016. [Article \(CrossRef Link\)](#)
- [54] M. Amin, S. Rezaei, and M. Abolghasemi, "User satisfaction with mobile websites: the impact of perceived usefulness (PU), perceived ease of use (PEOU) and trust," *Nankai Business Review International*, vol. 5, no. 3, pp. 258-274, Jul. 2014. [Article \(CrossRef Link\)](#)
- [55] A. George, G. G. Kumar, "Antecedents of customer satisfaction in internet banking: Technology acceptance model (TAM) redefined," *Global business review*, vol. 14, no. 4, pp. 627-638, 2013. [Article \(CrossRef Link\)](#)

- [56] S. J. Kim, "User Characteristics on Mobile OTT Service Adoption: Moderating Effect of Usage Frequency," *Journal of The Korean Operations Research and Management Science Society*, vol. 44, no. 4, pp. 59-80, 2019. [Article \(CrossRef Link\)](#)
- [57] Y. C. Cho, E. Sagynov, "Exploring factors that affect usefulness, ease of use, trust, and purchase intention in the online environment," *International journal of management & information systems*, vol. 19, no. 1, pp. 21-36, Jan. 2015. [Article \(CrossRef Link\)](#)
- [58] B. H. Jun, B. G. Kang, "Effects of information quality on customer satisfaction and continuous intention to use in social commerce," *Journal of the Korea society of computer and information*, vol. 18, no. 3, pp. 127-139, Mar. 2013. [Article \(CrossRef Link\)](#)
- [59] J. Revels, D. Tojib, and Y. Tsarenko, "Understanding consumer intention to use mobile services," *Australasian Marketing Journal*, vol. 18, no. 2, pp. 74-80, May 2010. [Article \(CrossRef Link\)](#)
- [60] D. Belanche, L. V. Casaló, and M. Guinalú, "Website usability, consumer satisfaction and the intention to use a website: The moderating effect of perceived risk," *Journal of retailing and consumer services*, vol. 19, no. 1, pp. 124-132, Jan. 2012. [Article \(CrossRef Link\)](#)
- [61] H. J. Park, L. M. Lin, "The effects of match-ups on the consumer attitudes toward internet celebrities and their live streaming contents in the context of product endorsement," *Journal of retailing and consumer services*, vol. 52, pp. 101934, Jan. 2020. [Article \(CrossRef Link\)](#)
- [62] J. Y. Tak, Y. Shi, "A study on the influence of Chinese TV Home shopping show hosts' impression on consumers' attitudes toward the show and their intention to buy," *Journal of Practical Research in Advertising and Public Relations*, vol. 6, no. 2, pp. 139-162, 2013. [Article \(CrossRef Link\)](#)
- [63] A. Caspi, I. Blau, "Social presence in online discussion groups: Testing three conceptions and their relations to perceived learning," *Social Psychology of Education*, vol. 11, pp. 323-346, Apr. 2008. [Article \(CrossRef Link\)](#)
- [64] T. J. Hess, M. Fuller, and D. E. Campbell, "Designing interfaces with social presence: Using vividness and extraversion to create social recommendation agents," *Journal of the Association for Information Systems*, vol. 10, no. 12, pp. 1, Dec. 2009. [Article \(CrossRef Link\)](#)
- [65] B. Lu, W. Fan, and M. Zhou, "Social presence, trust, and social commerce purchase intention: An empirical research," *Computers in Human Behavior*, vol. 56, pp. 225-237, Mar. 2016. [Article \(CrossRef Link\)](#)
- [66] M. Limayem, S. G. Hirt, and C. M. Cheung, "How habit limits the predictive power of intention: The case of information systems continuance," *MIS quarterly*, vol. 31, no. 4, pp. 705-737, Dec. 2007. [Article \(CrossRef Link\)](#)
- [67] V. P. Aggelidis, P. D. Chatzoglou, "Using a modified technology acceptance model in hospitals," *International journal of medical informatics*, vol. 78, no. 2, pp. 115-126, Feb. 2009. [Article \(CrossRef Link\)](#)
- [68] P. Kotler, *Marketing management. millenium edition*, Prentice-Hall, Inc., 2001.
- [69] S. A. Taylor, T. L. Baker, "An assessment of the relationship between service quality and customer satisfaction in the formation of consumers' purchase intentions," *Journal of retailing*, vol. 70, no. 2, pp. 163-178, 1994. [Article \(CrossRef Link\)](#)
- [70] R. Henderson, M. J. Divett, "Perceived usefulness, ease of use and electronic supermarket use," *International Journal of Human-Computer Studies*, vol. 59, no. 3, pp. 383-395, Sep. 2003. [Article \(CrossRef Link\)](#)
- [71] H. S. Yoon, L. Occena, "Impacts of Customers' Perceptions on Internet Banking Use with a Smart Phone," *Journal of Computer Information Systems*, vol. 54, no. 3, pp. 1-9, 2014. [Article \(CrossRef Link\)](#)
- [72] S. A. Nikou, A. A. Economides, "Mobile-Based Assessment: Integrating Acceptance and Motivational Factors into a Combined Model of Self-Determination Theory and Technology Acceptance," *Computers in Human Behavior*, vol. 68, pp. 83-95, Mar. 2017. [Article \(CrossRef Link\)](#)



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